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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,828	06/08/2005	Jac Sung Sim	0465-1354US1	8667
2292 7590 10/09/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER NALVEN, EMILY IRIS	
			ART UNIT 3744	PAPER NUMBER
			NOTIFICATION DATE 10/09/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/537,828

Applicant(s)

SIM ET AL.

Examiner

Emily I. Nalven

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/8/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/8/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claims 1-29** are objected to because of the following informalities:

In regard to claims 1 and 16, the recitations "in a π form along" (lines 8, respectively) ~~are~~ should be changed to -- at an angle along -- to improve the claim. Symbols are not permitted in the claim language.

In regard to claim 1, the recitation "the refrigerating chamber cold air passage" (line 10) should be changed to -- a refrigerating chamber cold air passage -- to improve the claim language. The recitation of "the refrigerating chamber cold air passage" (line 10) lacks antecedent basis.

In regard to claim 25, the recitation "axial flow fan, and the fan in the refrigerating chamber cold air passage is a cross flow fan" (lines 2-3) should be changed to -- axial flow fan or a second fan in the refrigerating chamber cold air passage is a cross flow fan -- to improve the claim language.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-8, 14, 16-25 and 28** are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (US Patent No. 5,706,671).

In regard to claims 1 and 16, Lee et al. teach a refrigerator (10) (see Fig. 1) comprising a freezing chamber (3a) (see Fig. 1 and col 2 lines 66-67 and col 3 lines 1-3), a refrigerating chamber (3b) at a side of the freezing chamber (3a) (see Fig. 1), a barrier (2) between the freezing chamber (3a) and the refrigerating chamber (3b) (see Fig. 1 and col 2 lines 66-67 and col 3 lines 1-3), the barrier (2) having a freezing chamber cold air passage (passage between 8 and 8b) formed therein (col 1 lines 28-31).

Lee et al. also teach a partition plate (6b) for compartmentalizing a freezing chamber cold air passage (passage between 8 and 8b) in rear of the freezing chamber (3a) where an evaporator (4) is positioned (see Fig. 1 and col 1 lines 20-21 and 24-26), the evaporator (4) provided at an angle along the freezing chamber cold air passage (passage between 8 and 8b) and a refrigerating chamber cold air passage (7b) (see Fig. 1, the evaporator is at a right angle to the length of the freezing chamber cold air passage (between 8 and 8b) and is perpendicular to a portion of the refrigerating chamber cold air passage 7b), a partition wall (rp) between the freezing chamber cold air passage (passage between 8 and 8b) and the refrigerating chamber cold air passage (7b) (see annotated Fig. 1 below).

Lee et al. also teach a fan (5) mounted over the freezing chamber cold air passage (passage between 8 and 8b) and the refrigerating chamber cold air

passage (7b) (see Fig. 1 and col 1 lines 22-23) for discharging cold air flowing through respective cold air passages (7b, 8) to the freezing chamber (3a) and the refrigerating chamber (3b), respectively (see Fig. 1). The fan (5) forces air into the freezing chamber (3a) and refrigerating chamber (3b) using the partition plate (6b) to direct the airflow of the coming from the fan (5). It is presumed that the fan (5) is mounted over both passages and there is only one fan in the system, not two separate fans as the language of the claim indicates "a fan" in the singular. **In regard to claims 2 and 18**, Lee et al. teach the refrigerator (10) wherein the evaporator (4) includes a first part exposed (exposed through vent 6a – see Fig. 1) to the freezing chamber cold air passage (passage between 8 and 8b) (see Fig. 1) and a second part (8b) exposed to the refrigerating chamber cold air passage (7b) (see Fig. 1). The face of the evaporator adjacent to the vent 6a is exposed to the chamber cold air passage via the duct 8. The second part (8b) tubing extends from the bottom side of the evaporator (4) to enter the refrigerating chamber cold air passage (7b).

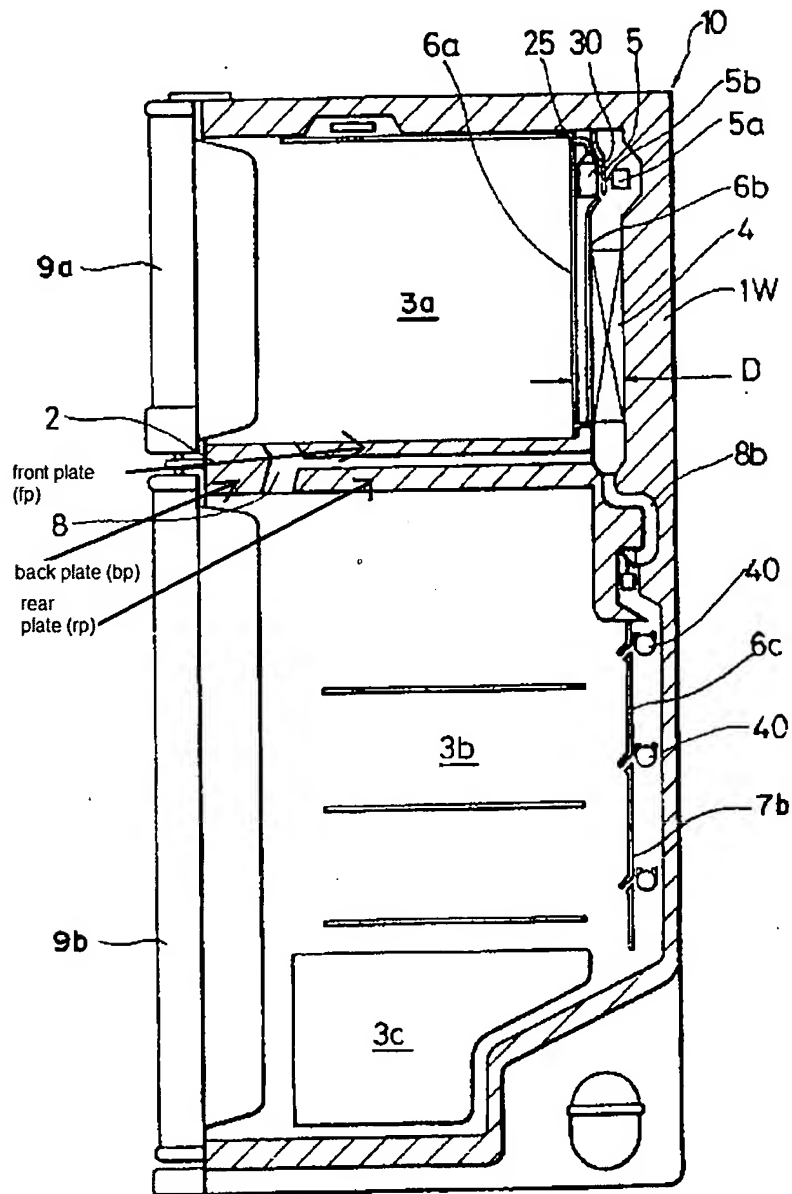
In regard to claims 3 and 19, Lee et al. teach the refrigerator (10) wherein the first part (6a) is larger than the second part (8b) (see Fig. 1). The surface area of the first part (6a) facing the freezing compartment (3a) is larger than the surface area of the second part (8b) facing the opening to the refrigerating compartment (3b) (see Fig. 1).

In regard to claims 4 and 20, Lee et al. teach the refrigerator (10) wherein an outer surface of the first part (6a) and the second part (8b) is separated by the

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partition wall (rp) for preventing the cold air flowing through the respective parts from mixing with each other (see Fig. 1).

F I G. 1



The In regard to claims 5 and 21, Lee et al. teach the refrigerator (10) wherein the partition plate (rp) includes a front plate (fp) and a back plate (bp) to form a

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cold air passage (see passage between fp and bp connected between passage 8) between the plates (fp, bp) (see annotated Fig. 1 above).

In regard to claims 6 and 22, Lee et al. teach the refrigerator (10) wherein the front plate (fp) has a plurality of cold air discharge openings (opening at 8 and opening at 8b) formed therein (see annotated Fig. 1 above). The front plate has an opening to let air exchange between the refrigerating chamber (3b) and freezing chamber (3a) via opening 8. There is a second opening above 8b to let air exchange with the fan and evaporator (4) as seen in annotated Fig. 1 above.

In regard to claims 7 and 23, Lee et al. teach the refrigerator (10) wherein the back plate (bp) has an opening in an upper part thereof (into 8b) and the fan (5) is provided adjacent to the openings (8, 8b) (see Fig. 1). The fan (5) is adjacent via the evaporator (4) (see annotated Fig. 1 above).

In regard to claims 8 and 24, Lee et al. teach the refrigerator (10) wherein the partition plate (1w) has openings (8, 8b) in a lower part thereof to form cold air suction openings (see annotated Fig. 1 above). The front plate has an opening to let air exchange between the refrigerating chamber (3b) and freezing chamber (3a) via opening 8. There is a second opening above 8b to let air exchange with the fan and evaporator (4) as seen in annotated Fig. 1 above.

In regard to claims 14 and 28, Lee et al. teach the refrigerator (10) wherein the barrier (2) has cold air suction openings (8 – entering into freezing chamber 3a and a second entering into refrigerating chamber 3b) in a lower part of a

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refrigerating chamber (3b) side thereof in communication with the refrigerating chamber cold air passage (7b) (see Fig. 1).

In regard to claim 17, Lee et al. teach the refrigerator (10) wherein the freezing chamber cold air passage (between 8 and 8b) and the refrigerating chamber cold air passage (7b) are in communication with each other (see Fig. 1) at one sides thereof and a damper (6c) is provided in a part of the communication is made (see Fig. 1 and col 1 lines 27-29). The freezing cold air passage and refrigerating chamber cold air passage are in thermal communication with each other via duct 8b and through the interior of the refrigerating chamber (3b). Wall (6c) acts as a damper in addition to partition plate (6b) (see Fig. 1).

In regard to claim 25, Lee et al. teach the refrigerator (10) wherein the fan (5) in the freezing chamber cold air passage (between 8 and 8b) is an axial flow fan (col 2 lines 15-29).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 9-13 and 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 5,706,671) in view of Kim (US Patent No. 6,112,546).

In regard to claim 9, Lee et al. teach the refrigerator (10) wherein there is fan (5) (see Fig. 1 and col 1 lines 22-23) but do not explicitly teach that it is a cross flow fan. Kim explicitly teaches placing a cross flow fan (304, 402 in combination) in a refrigerator system (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

In regard to claim 10, Lee et al. teach the refrigerator (10) wherein the fan (5) has one side exposed to the freezing chamber cold air passage (8) (via the freezing chamber 3a and indirectly through the louver 6a) and the other side exposed to the refrigerating chamber cold air passage (7b) (via louver 6a) (see Fig. 1). Kim explicitly teaches placing a cross flow fan (304, 402 in combination) in a refrigerator system (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

In regard to claim 11, see the rejection for claims 4 and 20.

In regard to claims 12 and 26, Lee et al. teach the refrigerator (10) wherein the refrigerating chamber cold air passage (7b) has a cold air discharge opening (6a) above a part adjacent to the fan (5) (see Fig. 1). Kim explicitly teaches placing a cross flow fan (304, 402 in combination) in a refrigerator system (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of

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the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

In regard to claims 13 and 27, Lee et al. teach the refrigerator (10) wherein the cold air discharge opening (6a) has a damper (7a) provided thereto for opening/closing the cold air discharge opening (6a) (see Fig. 6).

6. **Claims 15 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 5,706,671) in view of Yoshikawa et al. (US Patent No. 4,891,952).

In regard to claims 15 and 29, Lee et al. teach the refrigerator wherein there is an evaporator (4) (see Fig. 1) but do not explicitly teach that it is an one layered fin-tube type heat exchanger. Yoshikawa et al. explicitly teach a fin-tube type heat exchanger (8) (col 4 lines 22-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the heat exchanger as taught by Yoshikawa et al. as the evaporator as taught by Lee et al. to improve the efficiency and heat transfer of the system and thus reduce operational costs.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Oh (US Patent No. 6,038,880) teaches a refrigerator system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Iris Nalven whose telephone number is 571-272-3045. The examiner can normally be reached on Monday - Thursday 8 AM - 5:30 PM and on alternate Fridays 8 AM – 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cheryl J. Tyler can be reached on 571-272-4834 or Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emily Iris Nalven
Art Unit 3744
September 18, 2007

FRANTZ JULES
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Frantz Jules', is written over a horizontal line. The signature is stylized with a large 'F' and a long horizontal stroke.